

## Claims

1. An X-ray radiation source comprising an evacuated chamber with a window for X-ray radiation output, in which an electron emitter and a transparent anode are positioned to generate X-ray radiation, at least one focusing electron lens, and a device shaping the X-ray radiation beam placed outside the chamber but attached to it, wherein the anode is positioned before the electron lens focus along the electron beam path while the device shaping the X-ray radiation beam is a diaphragm, the center of the said diaphragm being placed at the focus of the said electron lens.
2. An X-ray radiation source of Claim 1, wherein the anode is a target made of metal foil deposited onto a substrate made of a small-atomic-number material.
3. An X-ray radiation source of Claims 1 and 2, wherein the anode is tightly vacuum-attached to the window for X-ray radiation output and positioned inside that window.
4. An X-ray radiation source of Claim 3, wherein the anode is equipped with a cooling facility.
5. An X-ray radiation source of any of Claims 1 through 4, wherein the electron lens has a point focus.
6. An X-ray radiation source of any of Claims 1 through 4, wherein the electron lens has a dash-like focus.
7. An X-ray radiation source of any of Claims 1 through 6, wherein the electron source used is a pulse source.